

**Bonneville Power Administration
Fish and Wildlife Program FY99 Proposal**

Section 1. General administrative information

Acquisition Of Pine Creek Ranch

Bonneville project number, if an ongoing project 9140

Business name of agency, institution or organization requesting funding
The Confederated Tribes of the Warm Springs of Oregon

Business acronym (if appropriate) CTWSRO

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Subcontractors.

Organization	Mailing Address	City, ST Zip	Contact Name

NPPC Program Measure Number(s) which this project addresses.

7.6.A, 7.6.B, 7.6.C, 11.3.A, 11.3D

NMFS Biological Opinion Number(s) which this project addresses.

Other planning document references.

The project involves the acquisition of land. In FY 98, \$150,000 of wildlife funds were committed and \$350,000 of watershed funds were requested for land aquisition. The Oregon Wildlife Coalition has designated this as a high priority project . The project is a consistent with the objectives of the John Day River Salmon and Steelhead Production Plan which states that "the highest priority problems affecting the salmon and steelhead of the John Day are directly related to degradation of riparian habitat".and that "Habitat

protection is the most important management activity and should receive highest priority" (NPPC, 1990). It is consistent with plans of the Wheeler County Soil and Water Conservation District (WCSWCD 1987, 89). It is supported by the Wheeler County Court (equivalent of County commission), the Oregon Museum of Science and Industry which owns and operates the Camp Hancock Field Station on adjacent property and Senator Ron Wyden of Oregon.

Subbasin.

John Day Subbasin - Pine Creek Watershed

Short description.

Protect and enhance the Pine Creek watershed and it's fish, wildlife, water, archeological, geological, and educational resources through acquisition and management of the 24,000 acre Pine Creek Ranch.

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
+	Anadromous fish		Construction	+	Watershed
+	Resident fish	+	O & M		Biodiversity/genetics
X	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research	+	Ecosystems
	Climate	+	Monitoring/eval.		Flow/survival
	Other	+	Resource mgmt		Fish disease
			Planning/admin.		Supplementation
			Enforcement	X	Wildlife habitat en-
		X	Acquisitions		hancement/restoration

Other keywords.

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship
	Pine Creek Ranch Acquisition	This project is co-funded through the BPA watershed project of the same title.

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Acquire Pine Creek Ranch	a	obtain funding
		b	purchase
2	Evaluate conditions	a	conduct inventories: instream, riparian,upland vegetation, noxious weeds
		b	complete evaluation reports
3	Develop management plans	a	work with local, state, federal and other appropriate entities
		b	access plan
		c	fisheries plan
		d	wildlife plan
		e	noxious weed plan
		f	riparian vegetation plan
		g	grazing plan
		h	geology plan
		i	archeology plan
		j	education plan
		k	cultural foods plan
4	Implement above plans		
4			

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	1/1999	9/1999	77.79%
2	3/1999	9/1999	9.64%
3	3/1999	9/2000	6.13%
4	4/1999	9/2001	6.44%
			TOTAL 100.00%

Schedule constraints.

Completion date.

Project will require watershed funds through FY99. All O&M and enhancement will be covered under the wildlife program, which requires BPA to provide adequate O&M

funding to sustain the project as long as the hydro system operates(FW Prog Measure 11..3C.1

Section 5. Budget

FY99 budget by line item

Item	Note	FY99
Personnel	Ranch Manager	\$30,000
Fringe benefits	@23%	\$6,900
Supplies, materials, non-expendable property	Fencing, gates,cattle guards, trees	\$10,000
Operations & maintenance		\$20,000
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	Ranch Acquisition, building improvements, vehicle,NEPA	\$1,240,000
PIT tags	# of tags:	\$ 0
Travel		\$ 0
Indirect costs		\$45,017
Subcontracts	weed control, cattleguard installation,fencing	\$10,000
Other		\$ 0
TOTAL		\$1,361,917

Outyear costs

Outyear costs	FY2000	FY01	FY02	FY03
Total budget	\$94,600	\$99,330	\$104,300	\$109,515
O&M as % of total	50.00%	50.00%	50.00%	50.00%

Section 6. Abstract

The CTWSRO is proposing to acquire the Pine Creek Ranch, thus allowing management of the entire Pine Creek watershed. Objectives would include: removal of livestock from damaged riparian and upland areas, fencing, noxious weed control and burning to remove juniper. BPA watershed funds in conjunction with BPA wildlife funds would be used for purchase and future out year funding.

The project will benefit a rich and diverse group of fish, wildlife, and plant species. Pine Creek watershed supplies habitats for at least 36 animal and plant species that are listed as sensitive, threatened or endangered. Pine Creek provides spawning and rearing habitat for one of the few remaining native steelhead populations in the lower John Day River basin. The property also provides important wintering habitat for deer and elk. Nine of

the target wildlife species identified in conjunction with the John Day project are present at Pine Creek. There is the potential to reintroduce several native wildlife species.

Currently streams in the project area suffer from grazing impacts. Removal of livestock will allow the stream and riparian areas to stabilize over time. Upland enhancement activities will include noxious weed control on some farmed tracts and juniper removal through burning.

Previous enhancement activities by GWEB indicates the watershed responds well to treatment. In the future “passive restoration” will be the direction used to manage this watershed. Since there is a wealth of baseline information on this project, some going back as far as 45 years, monitoring and evaluation should be easily accomplished.

Section 7. Project description

a. Technical and/or scientific background.

Pine Creek Watershed Restoration Project Technical/Scientific Background

INTRODUCTION

The Confederated Tribes of the Warm Springs Reservation of Oregon are submitting this watershed and wildlife project as a mitigation proposal under the Northwest Power Planning and Conservation Act Public Law 96-501.

The John Day Basin is home to the sovereign Confederated Tribes of the Warm Springs Reservation of Oregon. Pine Creek watershed lies within the Tribes ceded area and drains approximately 42,000 acres of arid rangeland in northwestern Wheeler County. The creek is a tributary to the mainstem of the John Day River with it's confluence near Clarno.

The Tribes propose to acquire the 24,304-acre Pine Creek Ranch through Bonneville Power Administration fish and wildlife mitigation funds.

The Pine Creek Ranch is currently owned by Mr. Dan Eddleman, Box 55, Willerado, Texas 79098 and is for sale. In addition to Pine Creek Ranch property there are 5290 acres of BLM land within the ranch boundaries.

There are significant fish, wildlife, plant, archaeological, and geological resources on this property as well as tremendous educational opportunities.

The goal of the Confederated Tribes is to restore the ecosystem functions of the Pine Creek watershed through protection and enhancement of its many rich and diverse resources. This will be accomplished primarily using passive restoration techniques that will focus on the cessation of activities that are causing degradation or preventing recovery of the watershed. This will be done throughout the watershed, not just within the riparian corridor.

BACKGROUND INFORMATION:

Pine Creek Watershed

Pine Creek is a tributary to the mainstem of the John Day River, and parallels state route 218 for 12 miles before its confluence near Clarno. This section of the creek flows westerly at about 1500 ft elevation with a 2.5% gradient.

Uncontrolled cattle grazing, especially in the riparian zone, has degraded habitat, caused severe erosion, and decimated the creek's once productive steelhead and native trout populations (WCSWCD 1987). Removal of riparian vegetation coupled with trampled banks and summer thunderstorms have caused deep downcutting (7-10 ft at many locations) and widening of the channel. These problems are compounded by changes in the native vegetative community. Fire suppression has allowed juniper trees to flourish. These trees consume groundwater year-round, and through competition with native grasses cause large patches of bare ground to develop (WCSWCD 1987).

In 1987, the Governor's Watershed Enhancement Board (GWEB) funded the Wheeler County Soil and Water Conservation District (WCSWCD) to carry out the Pine Creek Restoration Project. The restoration project was conducted in two phases. Phase I (total cost _ \$87,000) began in 1988 and focused on the lower portion of the watershed. Grazing plans were developed for approximately 13,000 acres (two landowners), and juniper trees were removed from 500 acres. About 14 miles of fencing were constructed to help control livestock through rotation grazing. Instream restoration work included the construction of 15 rock check dams, debris bars, and willow plantings (7000 along one mile. Phase II of the project (total cost _ \$140,000) began in the spring of 1990, and focused on juniper control, spring developments, and irrigation management in the upper watershed (WCSWCD 1987, WCSWCD 1989).

Wheeler County Soil and Water Conservation District's annual monitoring reports describe stream channel improvements as a result of the restoration efforts. After the first high water period the rock check dams had completely silted in, and vegetation began to re-establish. The vegetative and structural improvements withstood a 15-year storm (July 5, 1990) which deposited six inches of sediment behind the check dams. Juniper riprap has collected sediment and helped to stabilize slopes. The willow plantings have performed well despite 1990 summer drought conditions, and more fish have been observed (visual) in the creek (WCSWCD 1991, WCSWCD 1992).

Monitoring by Oregon Department of Fish and Wildlife (ODFW) between July 1988 and July 1990 also indicated stream channel improvements: decreased stream width (8.2 to 5.3 ft.), more pools (0% to 17%), better pool/riffle ratio (72:25 to 63:37), and more deciduous vegetation (sparse to abundant) (WCSWCD 1992). *{Note: These data are given as presented in the SWCD Monitoring/Evaluation report. There is a discrepancy between the 0% pools in 1988 and the pool/riffle ratio of 72:25. This difference is probably due to the incorporation of run/bend data in the pool/riffle ratio.}*

Despite these notable improvements, cattle grazing continued to be a problem on Pine Creek. For example, Oregon Trout (a non-profit sport fishing and environmental organization) reported in May of 1990 that riparian vegetation along a one mile segment of the GWEB project area had been decimated by cattle grazing. GWEB staff (Stahr

1990) verified Oregon Trout's complaint. It was estimated that \$30,000 of GWEB funds had been spent on this segment(Elder 1990).

b. Proposal objectives.

Proposal Objectives

Resource Value of the Acquisition

The 24,304-acre Pine Creek Ranch is located on the John Day River between the towns of Antelope and Fossil. It is bisected by Oregon Highway 218, with approximately 1/3 of the ranch on the north side of the highway, and 2/3 on the south. The ranch has an additional 5920 acres of BLM land within its boundaries. The ranch, with the BLM lands includes the bulk of the Pine Creek drainage basin, plus sizable portions of the Hay Bottom and Rhodes Canyon drainages. Habitat diversity ranges from lower level sage and juniper grasslands at an elevation of 1400 feet, to high quality grassland areas and some of areas of ponderosa pine and Douglas fir up to 2800 feet. A sampling of habitats includes small wet meadows, dry meadows, cliff faces, at least one small aspen grove, seeps, springs, bunch grass covered hills, rocky mountain mahogany patches, beaver dams, and lush riparian zones.

Resources:

Pine Creek watershed supplies a rich diversity of habitats for at least 36 animal and plant species that are listed as sensitive, threatened or endangered (Csuti 1997).

Fisheries/Steelhead: The ranch includes approximately 12 miles of steelhead spawning stream on Pine Creek, and up to three miles of steelhead spawning stream on Little Pine Creek, a small tributary. As many as 24 steelhead reads have been found in just two miles of streambed. Annual redd counts have been conducted since about 1986.

Wildlife: The ranch's wildlife resources include mule deer, pronghorn antelope, Rocky Mountain Elk, black bear, cougar, bobcat, mink and river otter. Recently bighorn sheep were observed on the ranch. The ranch provides important wintering habitat for deer and elk. Other notable mammals that have used the area historically include white-tailed jackrabbits, pygmy rabbits, pallid bats, and Northern flying squirrels.

Most notable bird species found on the ranch are, golden eagles (two nest sites), goshawks, pygmy owls, flamulated owls and other raptors. A peregrine falcon and Swainson's hawk were observed several years ago. Mountain quail are present and there is the potential to reintroduce sharp-tailed grouse and sage grouse. Soras, Virginia Rails, Canada Geese, Mallard, Cinnamon Teal, Common Mergansers are all current nesting species. Green Wing Teal has been a nesting species in the past. Willow Flycatchers are found in the riparian zone along Pine Creek. Other species that have been seen on the ranch, include: Loggerhead Shrikes, White Headed Woodpeckers, Black-backed Woodpeckers, Three-toed Woodpeckers, Tri-Colored Blackbirds, Pygmy Nuthatches, White-throated Swifts, and Pine Grosbeaks.

Select plants of particular interest: The ranch has some good stands of Pallid Paintbrush, and *Pediocactus simpsonii*. The riparian mariposa lily, *Calocortus longebarbatus*, a rare onion *Allium campanulatum*, and a lady's slipper orchid *Cypripedium montanum*, are probably all present on the ranch. John Day Chaenactis is a Central Oregon endemic species found only on barren volcanic ash soils. Other plants of interest on the ranch are Dwarf evening-primrose, Cushion coryphantha, and Beaked cryptantha.

Geological and Paleontological Resources: The ranch has both Clarno and John Day geological formations. The age of these sedimentary and igneous rocks range from 24 to 52 million years. Fossil resources include Clarno-age mudflows with fossil woods and leaves from a warm, moist sub-tropical setting, and the John Day Formation leaf fossil localities with fossils from a temperate forest setting. Limited vertebrate fossils also exist on the ranch. Igneous rocks include andesite and basalt flows, welded volcanic tuffs, and extensive weathered air fall volcanic ash. (Orr et al. 1976) Although oil exploration has occurred on and around the ranch, there is no reason to believe that oil or gas will be found in economic quantities. Marine sediments of Cretaceous Age, 65 -70 million years, lie within 1500 feet of the surface as evidenced by past well drilling. From a culturally significant standpoint, fine grained quartz is found well distributed over the ranch, and was used in the making of 88-92% of the flaked stone tools in the area. Only 8-12% of the artifacts found in researched sites were obsidian, which was brought in from elsewhere. Lenses of 6600-year-old Mazama ash 1" to 50" thick exist on the ranch and serve as a geomorphological and archaeological time reference point.

Pine Creek is currently an important wild steelhead spawning stream in the lower John Day River. The property includes approximately 12 miles of currently used spawning habitat on the mainstem of Pine Creek and 3 miles on Little Pine Creek. The goal of this project would be to restore the ecosystem functions of the Pine Creek watershed through protection and preservation of its many rich and diverse resources. The primary objective for fish resources would be the preservation and protection of the existing steelhead populations and their spawning and rearing habitat. Secondary objectives would be to increase the amount of available spawning and rearing habitat, primarily through the removal of livestock in order to allow natural processes to be the primary agents of recovery. It is estimated that this could lead to ___miles of increased spawning habitat.

The objective for the upland portion of the property is to protect and enhance the existing populations of both game and non-game species. This would be accomplished through a combination of activities such as livestock removal, controlled burning, fencing, weed control and native plantings if appropriate. Also there is the potential to reintroduce native species, such as bighorn sheep and sage and sharp-tail grouse. The project area contains several of the high priority habitat types identified in the wildlife mitigation portion of the NPPC Columbia River Fish and Wildlife Program (NPPC 1994) and will provide habitat units to offset the losses for construction of John Day Dam. Nine of the target species identified in conjunction with the John Day project are present at Pine Creek. It is estimated that the project could provide a total of about 9-10,000 habitat units to offset John Day losses.

c. Rationale and significance to Regional Programs.

Rationale and significance to Regional Programs

This project is in the John Day Subbasin, the only subbasin in the Columbia River basin that supports totally wild populations of salmon and steelhead (NPPC 1990). It is the second largest undammed river in the United States and the fourth largest drainage area in the state (21,072 km²) (Wissmar 1994). The current condition of the basin is documented in the John Day River Subbasin Plan (NPPC 1990) which concluded that riparian habitat degradation is the most serious habitat problem in the John Day Basin with approximately 660 degraded stream miles identified (NPPC 1990). The stated objective for the basin is to "Protect existing anadromous fish habitat by preventing further watershed degradation and the resulting changes in quality, quantity and instream habitat" (NPPC 1990). This objective has also been incorporated into the tribal restoration plan Wy-Kan-Ush-Mi Wa-Kish-Wit (CRITFC 1995). While populations in the upper portion of the basin are in moderately good condition, populations in the lower mainstem area are in poor shape and declining (USDA 1996). Steelhead are being considered for listing under the Endangered Species Act by the National Marine Fisheries Service (NMFS). Since one of the primary objectives of this project is to protect and enhance the wild steelhead in the Pine Creek system it should substantively help in eliminating the continued decline of wild steelhead runs in the John Day basin. This is consistent with the plan for steelhead that is being developed by the State of Oregon and being presented to NMFS in order to prevent listing.

Additionally, the area in question has been identified through GAP analysis to be an important corridor that provides connectivity for a variety of key wildlife species and habitats (ODFW 1997). The project provides linkages to several BLM parcels considered for wilderness status and federal lands managed by the National Park Service. The lower John Day Basin from Service Creek (Rm 10) to Tumwater Falls (Rm 10) is included in the federal and Oregon wild and scenic waterways system. The portion of the project that fronts the mainstem John Day will provide a linkage to federally owned upstream and downstream areas. Because of this, the site has been identified as a high priority wildlife mitigation site by the Oregon Wildlife Coalition (ODFW 1997).

The Pine Creek Ranch is currently for sale. The Warm Springs Tribes have been working with the Trust For Public Lands (TPL) in seeking acquisition of this property. TPL has been working with the landowner to secure an exclusive option on the property to protect it until the Council makes a decision on whether or not to proceed with the purchase under the Columbia River Basin Fish and Wildlife Program. The Tribes have met with the Wheeler County Court (County Commission) and have its general support for the project. The project is also strongly supported by Senator Ron Wyden of Oregon.

The purchase of the Pine Creek Ranch would essentially encompass the entire Pine Creek Watershed, which includes the mainstem and all the tributaries of Pine Creek (See Map). Pine Creek has undergone extensive biological and ecological monitoring and evaluation for over 45 years in conjunction with science education programs conducted through the Oregon Museum of Science and Industry (OMSI) which operates the Camp Hancock Field Station on property adjacent to the Pine Creek Ranch. Because of the association with OMSI a number of scientific assessments have also been conducted by several universities and state agencies. This includes annual redd

counts, from 1986, big game and game bird estimates, and botanical surveys. The Warm Springs Tribes and OMSI have agreed to continue this valuable association and OMSI has committed to providing scholarships to the field station for both tribal and local area youth.

In addition, in 1987, the Governor's Watershed Enhancement Board (GWEB) targeted Pine Creek as a watershed restoration project. The restoration work began in 1988 and was funded by GWEB, other public agencies, and private landowners (Farthing 1994, WCSWCD 1987, WCSWCD 1989, WCSWCD 1991, WCSWCD 1992). In conjunction with this restoration work, Pine Creek was selected by the Oregon Department of Environmental Quality as one of three watersheds in the John Day Basin to test the Environmental Protection Agencies Rapid Bioassessment Protocols for use in Rivers and Streams (RBP's) (Pflafer 1989). The study, Biological Monitoring Report and Evaluation of EPA's Rapid Bioassessment Benthic Protocol for Three Governor's Watershed Enhancement Board Restoration Projects in the John Day River Basin, was conducted between September 1990 and May 1992 and the results were published in 1993 (Caton 1993).

There were two main objectives to this study:

1. Testing the effectiveness of a Benthic Rapid Bioassessment Protocol for detecting biological impairment due to NPS pollution, primarily cattle grazing, and
2. Collecting water quality and biological monitoring data for NPS assessment at selected stream restoration projects. The data were used to establish baseline conditions and to help in measuring biological change over time.

Additionally, the Oregon Department of Fish and Wildlife collected extensive baseline information, including vegetational mapping, temperature, flow, velocity, stream depth and width, pH, dissolved oxygen, bottom type and pool/riffle ratio.

These studies provide an excellent source of baseline information on a number of biological and physical parameters for the watershed.

Other resource assessments include archaeological, geological and paleontological. The area contains over a dozen archaeological sites, including a village, numerous pit houses, several rock shelters and their associated pictographic art. Cultural resources important to the Warm Springs Tribes have been identified on the property and the Tribes continued to utilize the area for gathering of roots until recent changes in ownership prevented this activity. The property is adjacent to existing portions of the John Day Fossil Beds National Monument and contains significant fossil resources.

Although Pine Creek continues to support spawning steelhead populations the watershed is in a degraded condition due, for the most part, to overgrazing and loss of a good portion of the native riparian vegetation. Due to the loss of riparian cover in much of the basin water temperatures are elevated and are likely to be an impediment to fish production in many portions of the watershed. Agricultural farming along the riparian corridor has been detrimental because of loss of native riparian vegetation resulting in erosion and increased sediment loads in the stream. This information is documented in the aforementioned DEQ and ODFW reports (Caton, 1993) (Farthing 1994). Additionally, invasions of noxious weeds have further reduced overall system productivity at some sites.

While much of the upland habitat is in good to very good condition, there are areas where Juniper invasion and/or noxious weeds have degraded the landscape. Additionally, most of the property has been used for livestock grazing and some sites are in poor condition.

This project will link adjacent properties owned by the National Park Service and the Bureau of Land Management. Cooperative management agreements with these agencies will lead to a much larger area being managed for the species in question as well as a greater species diversity.

The techniques that will be employed for restoration will primarily involve the restriction of activities that significantly impact aquatic, riparian and upland ecological functions. The use of natural restoration on such a large scale is a concept that has not yet been adequately tested and this project could serve as a model for watershed restoration and enhancement. This project provides a unique opportunity for testing "passive restoration" (Beschta 1991) (Beschta 1994) (Kauffman 1997) concept, since it is one of the few watersheds within the John Day Basin with multi-year (1988-1993) baseline data on aquatic and riparian ecosystem health.

Because the project includes the entire Pine Creek Watershed it is not likely that it would be affected by other activities in the subbasin. It is very likely that the project benefits would persist over the long-term, if the property is managed as described and funding remains available to meet the project goals and objectives. Bonneville will require proper legal assurances that will ensure that the property will be managed specifically for the benefit of fish and wildlife resources.

The project is consistent with all known local, state, federal and tribal laws. The NW Power Planning Council under the Columbia River Basin Fish and Wildlife Program has approved similar projects in the state of Oregon. Bonneville, including the recent N.E. Oregon Wildlife Project, involving the Nez Perce Tribe has successfully implemented several of these projects. The project is covered under Bonneville's Wildlife (BPA 1997b, BPA 1997c) and Watershed Programmatic Environmental Impact Statements (BPA 1997a).

This project is consistent with several areas of the Council's Fish and Wildlife Program, and the proponents intend to submit it as a joint watershed and wildlife project. Specifically, it is consistent with Section 7.6 of the Fish and Wildlife Program, which calls for watershed based habitat restoration focusing on protection of wild and natural populations. Additionally, it is consistent with Section 11 of the Program, which addresses the needs of wildlife (NPPC 1994) resources. Portions of the uplands will provide habitat units for losses associated with John Day Dam.

d. Project history

e. Methods.

E. Methods

Methods to carry out the project will consist primarily of passive restoration techniques. This would be accomplished through a combination of activities such as livestock removal, controlled burning, fencing, weed control and native plantings where appropriate (Gregory 1997). Also there is the potential to reintroduce native species, such as bighorn sheep and sage and sharp-tail grouse. At the local level, the cessation of activities that are currently leading to biological degradation will resolve the identified problem in the Pine Creek drainage. Over time the cessation of these activities lead to recovery of the plant communities in both riparian and upland areas (Kauffman 1997).

As noted in the section on Watershed Assessments, Pine Creek has undergone extensive aquatic and riparian monitoring and evaluation. Monitoring sites and transects were established in conjunction with the previous assessments and these would be used to ensure the continued collection of long-term biological and ecological trends. Within the riparian zone, parameters to be monitored include, riparian area width, canopy cover, cover composition, vegetative overhang, pool-riffle ratio, pool cover, temperature, stream substrate, velocity, and stream cross-section profiles, water chemistry and macroinvertebrates. Detailed descriptions of monitoring protocols for Pine Creek are described in (Farthing 1994) and (Caton 1993) Both anadromous and resident fish populations would continue to be monitored.

It is anticipated that a monitoring and evaluation plan for wildlife will be developed which will provide the information necessary to ensure that the project is meeting its biological objectives for non-aquatic species. This will include information on both populations and habitats, including the use of the Habitat Evaluation Procedure (HEP) (Interior 1980) where appropriate. An attempt will be made to integrate wildlife and fisheries data to provide indices of watershed "health".

The proximity of the site to the OMSI facility at Camp Hancock will facilitate an opportunity to use expertise from universities and other educational institutions to supplement monitoring. Cooperative arrangements for monitoring and evaluation are being developed with the Environmental Sciences and Resources Department at Portland State University. Because of the unique relationship between OMSI and the Pine Creek Watershed there has already been a great deal of baseline information collected on the biological condition of the project area. From 1989 through 1992 ODFW carried out the Pine Creek Enhancement and Monitoring watershed education project under a Grant from GWEB. Workshops provided education for teachers on the value of watersheds, while at the same time collecting and compiling valuable data on the watershed. Reports prepared by ODFW from the workshops provide valuable baseline information on vegetative and stream conditions (Farthing 1994)

f. Facilities and equipment.

g. References.

Beschta, R. L., W.S. Platts, and J.B. Kauffman 1991. Field review of fish habitat

- improvement projects in the Grande Ronde and John Day River Basins of eastern Oregon. DOE/BP-21493-1. US Department of Energy, Bonneville Power Administration, Portland, OR
- Beschta, R. L., W.S. Platts, J. B. Kauffman, and M.T. Hill 1994. Artificial stream restoration--money well-spent or an expensive failure? Universities Council on Water Resources Annual Conference, Big Sky Montana, Carbondale, IL
- BPA 1997a. Watershed Management Program Final Environmental Impact Statement. DOE/EIS - 0265. Bonneville Power Administration, Portland, OR
- BPA 1997b. Wildlife Mitigation Program Final Environmental Impact Statement. DOE/EIS - 0246. Portland, OR
- BPA 1997c. Wildlife Mitigation Program Record of Decision. DOE/EIS - 0246. Bonneville Power Administration, Portland, OR
- Caton, L. 1993. Biological Monitoring Report and Evaluation of EPA's Rapid Bioassessment Benthic Protocol. Oregon Department of Environmental Quality, Portland
- CRITFC 1995. Wy-Kan-Ush-Mi-Wa-Kush-Wit: The spirit of the salmon. Columbia River Intertribal Fish Commission, Portland, OR
- Csuti, B., A.J. Kimerling, T.A. O'Neil, M.M. Shaughnessy, E. Gaines, M.M.P. Huso. 1997. *Atlas of Oregon Wildlife: distribution, habitat, and natural history*. Oregon State University Press, Corvallis, OR.
- Farthing, P. 1994. Watershed Education Project: GWEB Grant Proposals - Periodic Evaluation and Completion Reports for 1988, 1989, 1990 Project Years. Oregon Department of Fish & Wildlife, Portland, Oregon
- Gregory, S. V. a. P. A. B. 1997. Degradation and loss of anadromous salmonid habitat in the Pacific Northwest in D. J. Stouder, P.A. Bisson, and R.J. Naiman, ed. *Pacific Salmon and Their Ecosystems; Status and Future Options*. Chapman & Hall, New York.
- Interior, U. S. D. 1980. Habitat as a Basis for Environmental Assessment. ESM 101, Release 4-80. U. S. Fish and Wildlife Service, Division of Ecological Services, Washinton, D.C.
- Kauffman, J. B., R.L. Beschta, N. Otting, and D. Lytjen. 1997. An ecological perspective of riparian and stream restroation in the western United States. *Fisheries* 22: 12-24.
- NPPC 1990. John Day River Subbasin Salmon & Steelhead Production Plan.

Northwest Power Planning Council, Portland, OR

NPPC 1994. Columbia River Basin Fish and Wildlife Program. NPPC 94-55.
Northwest Power Planning Council, Portland, OR

ODFW 1997. Assessing Oregon Trust Agreement Planning Project Using GAP Analysis. In fulfillment of Project Number 95-65, Contract Number DE-BI179-92BP90299. Prepare for: U.S. Bonneville Power Administration; Project Cooperators: U.S. Fish and Wildlife Service, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation, Burn Paiute Tribe, Oregon Natural Heritage Program, Portland, OR

Orr, E. L., W. N. Orr, and E. M. Baldwin. 1976. *Geology of Oregon*. Kendall/Hunt Publishing, Dubuque, IA.

Pflafkin, J. L., M.T. Barbour, K.D., Porter, S.K., Gross, R.M/ Hughes, 1989. Rapid bioassessment protocols for use in streams and rivers: benthic macroinvertebrates and fish. EPA/444/4-89-001. EPA,

USDA 1996. Status of the interior Columbia basin: summary of scientific finding. General Technical Report PNW-GTR-385. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR

WCSWCD 1987. Governor's Watershed Enhancement Board Application for Grant Funds: Pine Creek Watershed Rehabilitation Project. Wheeler County Soil and Water Conservation District,

WCSWCD 1989. Governor's Watershed Enhancement Board Application for Grant Funds: Pine Creek Project , Phase II. Wheeler County Soil and Water Conservation District,

WCSWCD 1991. Monitoring and Evaluation Report, Pine Creek Project Phase I and II, December 1989 -- November 1990.

WCSWCD 1992. Monitoring/Evaluation Report, Pine Creek Project Phase I, November 1990 -- June 1992.

Wissmar, R. C., J.E. Smith, B.A. McIntosh, H.W. Li, G.H. Reeves, J.R. Sedell. 1994. A history of Resource use and disturbance in riverine basins of Eastern Oregon and Washington (early 1800s-1900s). *Northwest Science* 68: 1-35.

Section 8. Relationships to other projects

Section 9. Key personnel

Terry A. Luther, Fish, Wildlife and Parks Manager,
B.S. Wildlife Science, Oregon State University, 1976.
Confederated Tribes of the Warm Springs Reservation of Oregon

Currently responsible for the management and supervision of Fisheries, Wildlife and Parks programs on and off the Reservation. This involves oversight of 18 different projects and contracts including two ceded area offices in Hood River and John Day, Oregon. Other responsibilities involve; timber harvest impacts to fish and wildlife resources, development and implementation of integrated plans for fish and wildlife resources, FERC coordination, wildlife mitigation efforts, bull trout research and spotted owl project monitoring.

Patty O'Toole-Fisheries Biologist
Duties include project administration, planning, design, implementation, coordination and monitoring and evaluation.
B.S. Zoology, Oregon State University, area of emphasis: Organismal Biology, 1989.
Employed by the Confederated Tribes of the Warm Springs Reservation of Oregon.
Eight years in fisheries management, project planning and implementation (production, management and habitat). Lead preparer for the Hood River Production Project Master Plan, Master Agreement and Environmental Impact Statement. Contributor to IRMP I and II.

Shaun W. Robertson - Watershed Restoration Coordinator
Duties: Contractual oversight, technical assistance, project review, project monitoring, public education efforts.

Other project personnel will be assigned/hired/contracted when contract is established with BPA.

Section 10. Information/technology transfer

The monitoring and evaluation information obtained from the project (see section 7 methods) will be incorporated into StreamNet the regional fish and wildlife data base. Information will be available electronically through the StreamNet website.